

5 What is claimed is:

1. A method for joining a first weldable metal structure to a second weldable metal structure, each structure comprising a first surface, a second surface opposed to the first surface, a thickness, and an edge, wherein the thickness of the first structure is about the same as the thickness of the second structure, wherein the first weldable metal structure comprises a first porosity, the method comprising steps of:
 - a) abutting the edge of the first structure with the edge of the second structure, wherein the abutted edges constitute a seam, and wherein the first surface of the first structure is disposed adjacent to the first surface of the second structure,
 - b) welding the first structure and second structure from the first surfaces along at least a portion of the seam through at least about 75 percent of the thickness,
 - c) welding the first structure and the second structure along at least a portion of the seam from the second surfaces.
2. The method according to claim 1 wherein the first weldable metal structure comprises a laminated metal structure.
3. The method according to claim 2 wherein the step of welding the first metal structure and the second metal structure from the first surfaces, along at least a portion of the seam, through at least about 75 percent of the thickness, comprises gas tungsten arc welding the metal structures.
4. The method according to claim 3 the step of gas tungsten arc welding the metal structures further comprising the addition of filler wire.
5. The method of claim 3 wherein the step of welding the first structure and the second structure along at least a portion of the seam from the second surfaces, comprises plasma arc welding the metal structures.
6. The method of claim 3 wherein the step of welding the first structure and the second structure along at least a portion of the seam from the second surfaces, comprises laser welding the metal structures.
7. A method for joining a first porous laminated weldable metal structure to a second porous laminated weldable metal structure, each structure comprising a coarse surface, a fine surface opposed to the coarse surface, a thickness, and an edge,

wherein the thickness of the first structure is about the same as the thickness of the second structure, the method comprising steps of:

- a) abutting the edge of the first structure with the edge of the second structure wherein the abutted edges constitute a seam, wherein the coarse surface of the first structure is disposed adjacent to the coarse surface of the second structure,
 - b) gas tungsten arc welding the first structure and second structure from the coarse surfaces along a portion of the seam through at least about 75 percent of the thickness,
 - c) plasma arc welding the first structure and the second structure along a portion of the seam from the fine surfaces.
8. The method according to claim 7 further comprising a step of juxtaposing a heat sink with the second surfaces of the structures in contact with the seam.
 9. The method according to claim 7 further comprising a step of disposing a first heat sink with the first surface of the first weldable metal structure along the seam, and disposing a second heat sink with the first surface of the second structure along the seam, wherein the first thermal conduction member and second thermal conduction member are adjacent to but not in contact with the seam.
 10. The method according to claim 7 further comprising a step of adding filler wire to the seam, as the structures are gas tungsten arc welded.
 11. A method of joining a first porous laminated weldable metal structure and a second porous laminated weldable metal structure, each metal structure comprising a coarse surface, a fine surface opposed to the coarse surface, a thickness, and an edge, the method comprising steps of:
 - a) abutting the edges of the first porous laminated weldable metal structure and the second porous laminated weldable metal structure wherein the abutted edges constitute a seam, and wherein the coarse surface of the first porous laminated weldable metal structure is disposed adjacent to the coarse surface of the second porous laminated weldable metal structure,
 - b) gas tungsten arc welding the first structure and second structure from the coarse surfaces, along the seam, through at least about 75 percent of the thickness,
 - c) laser welding the first structure and the second structure along the seam on the fine surfaces.

12. The method according to claim 11 further comprising a step of juxtaposing a heat sink with the fine surfaces of the structures along the seam as the porous metal structures are gas tungsten arc welded.
13. The method according to claim 11 further comprising a step of adding filler wire to the seam, as the structures are gas tungsten arc welded.
14. A porous metal structure comprising:
a plurality of porous, laminated weldable metal elements joined together,
wherein the metal elements are joined with at least one weld seam having a width of less than about 0.075 inches
15. The porous metal structure of claim 15 wherein the structure comprises a cylinder.